

AMENDMENTS TO THE SPECIFICATION

Please amend the specification as follows:

Page 3, please replace the last paragraph beginning with the phrase “According to the present invention described in claim 1 . . .” with the following amended paragraph:

~~---~~According to ~~the present invention described in claim 1~~ a non-limiting feature of the invention, provided is an apparatus for calculation of a correlation value corresponding to a frequency error, includes: a 0-th degree correlation unit for taking, to output, a correlation between a reference signal and a measurement signal; an n-th degree correlation unit including a frequency addition calculator for calculating a frequency component addition signal having a frequency component added to the reference signal, and a correlation calculator for taking, to output, a correlation between the frequency component addition signal and the measurement signal; and an addition unit for adding an output of the 0-th degree correlation unit and an output of the n-th degree correlation unit.~~---~~

Page 4, please replace the second full paragraph beginning with the phrase “The present invention described in claim 2 . . .” with the following amended paragraph:

~~---~~~~The present invention described in claim 2~~, is A non-limiting feature of the present invention includes an apparatus for calculation of a correlation value corresponding to a frequency error ~~according to claim 1~~, wherein the frequency addition calculator multiplies the reference signal by $e^{j\omega t}$, where $\omega=2\pi f$ (f is a frequency). ~~---~~

Page 4, please replace the third full paragraph beginning with the phrase “The present invention described in claim 3 . . .” with the following amended paragraph:

~~---The present invention described in claim 3, is~~ A non-limiting feature of the present invention includes an apparatus for calculation of a correlation value corresponding to a frequency error ~~according to claim 1~~, wherein the frequency addition calculator takes an EXOR between a digital clock of a constant frequency and the reference signal.

Page 4, please replace the fifth full paragraph beginning with the phrase “The present invention described in claim 4 . . .” with the following amended paragraph:

~~---The present invention described in claim 4, is~~ A non-limiting feature of the present invention includes an apparatus for calculation of a correlation value corresponding to a frequency error ~~according to claim 1~~, wherein the reference signal is a data symbol having a spread code superposed thereon, and the frequency addition calculator takes an EXOR between the data symbol and a digital clock of a constant frequency, to superpose the spread code.---

Page 4, please replace the sixth full paragraph beginning with the phrase “The present invention described in claim 5 . . .” with the following amended paragraph:

~~---The present invention described in claim 5, is~~ A non-limiting feature of the present invention includes a method for calculation of a correlation value corresponding to a frequency error,

including: a 0-th degree correlation step for taking, to output, a correlation between a reference signal and a measurement signal; an n-th degree correlation step including a frequency addition calculator for calculating a frequency component addition signal having a frequency component added to the reference signal, and a correlation calculator for taking, to output, a correlation between the frequency component addition signal and the measurement signal; and an addition step for adding an output of the 0-th degree correlation step and an output of the n-th degree correlation step.---

Page 5, please replace the first full paragraph beginning with the phrase “The present invention described in claim 6 . . .” with the following amended paragraph:

~~----The present invention described in claim 6, is~~ A non-limiting feature of the present invention includes a computer-readable medium embodying a program of instructions for execution by the computer to perform a method for calculation of a correlation value corresponding to a frequency error, including: a 0-th degree correlation step for taking, to output, a correlation between a reference signal and a measurement signal; an n-th degree correlation step including a frequency addition calculator for calculating a frequency component addition signal having a frequency component added to the reference signal, and a correlation calculator for taking, to output, a correlation between the frequency component addition signal and the measurement signal; and an addition step for adding an output of the 0-th degree correlation step and an output of the n-th degree correlation step.---

Page 5, please replace the second full paragraph beginning with the phrase “The present invention described in claim 7 . . .” with the following amended paragraph:

~~---The present invention described in claim 7, is~~ A non-limiting feature of the present invention includes a correlation system including: a frequency adding unit for receiving a reference signal $R0(t)$ and adding thereto a predetermined plurality n of frequency components ($F1-Fn$) to output a resultant reference signal $R1(t)-Rn(t)$; an adder for receiving n reference signals $R1(t)-Rn(t)$ and a single said reference signal $R0(t)$ as a base and adding them together to output a corrected reference signal $R(t)$; and a correlator for taking a correlation between a measurement signal $S(t)$ and said corrected reference signal $R(t)$ to output a correlation output signal.---

Page 5, please replace the last paragraph beginning with the phrase “The present invention described in claim 8 . . .” with the following amended paragraph:

~~---The present invention described in claim 8, is~~ A non-limiting feature of the present invention includes a correlation system ~~according to claim 7~~, wherein the frequency adding unit multiplies the reference signal $R0(t)$ by $[[e^{j\omega t}]] e^{-j\omega t}$, where $\omega = 2\pi f$ (f is a frequency).---

Page 6, please replace the first full paragraph beginning with the phrase “The present invention described in claim 9 . . .” with the following amended paragraph:

~~---The present invention described in claim 9, is~~ A non-limiting feature of the present invention includes a correlation system ~~according to claim 7~~, wherein the frequency adding unit outputs an exclusive logical sum (EXOR) between digital clocks of frequencies corresponding to the frequency components ($F1-Fn$) and the reference signal $R0(t)$.---

Page 6, please replace the second full paragraph beginning with the phrase “The present invention described in claim 10 . . .” with the following amended paragraph:

~~---The present invention described in claim 10, is~~ A non-limiting feature of the present invention includes a correlation system including a frequency adding unit having a predetermined plurality n of multiplying unit (EXOR), an adder, a spreader, and a correlator, wherein the plurality n of multiplying unit (EXOR) each receive a corresponding frequency component ($F1-Fn$) and a symbol data $DO(t)$ as a base and multiply both of them to output a multiplied symbol data $D1(t)-Dn(t)$, the adder receives said symbol data $D1(t)-Dn(t)$ from a respective multiplying unit (EXOR) and said symbol data $D0(t)$ as the base and performs an adding process for them to output a resultant addition symbol data $D(t)$, the spreader receives a spread signal of said addition symbol data $D(t)$ and superposes thereon a spread code $L(t)$ to output a corrected reference signal $R(t)$, and the correlator receives said corrected reference signal $R(t)$ and a measurement signal $S(t)$ and takes a correlation between them to output a correlation output signal.---

Page 6, please replace the third full paragraph beginning with the phrase “The present invention described in claim 11 . . .” with the following amended paragraph:

~~---The present invention described in claim 11, is~~ A non-limiting feature of the present invention includes a correlation system according to claim 7, wherein the measurement signal $S(t)$ is a reception signal of a spread signal spectrum spread.---

Page 6, please replace the fourth full paragraph beginning with the phrase “The present

invention described in claim 12 . . .” with the following amended paragraph:

~~---The present invention described in claim 12, is~~ A non-limiting feature of the present invention includes a correlation system ~~according to claim 10,~~ wherein the measurement signal S(t) is a reception signal of a spread signal spectrum spread.---

Page 6, please replace the fifth full paragraph beginning with the phrase “The present invention described in claim 13 . . .” with the following amended paragraph:

~~---The present invention described in claim 13, is~~ A non-limiting feature of the present invention includes a correlation system ~~according to claim 7,~~ wherein the measurement signal S(t) is a spectrum spread signal of a W-CDMA system.---

Page 7, please replace the first paragraph beginning with the phrase “The present invention described in claim 14 . . .” with the following amended paragraph:

~~---The present invention described in claim 14, is~~ A non-limiting feature of the present invention includes a correlation system ~~according to claim 10,~~ wherein the measurement signal S(t) is a spectrum spread signal of a W-CDMA system.---

Page 7, please replace the second paragraph beginning with the phrase “The present invention described in claim 15 . . .” with the following amended paragraph:

~~---The present invention described in claim 15, is~~ A non-limiting feature of the present invention includes a correlation method including: a frequency adding step for receiving a reference signal $R_0(t)$ and adding thereto a predetermined plurality n of frequency components (F_1 - F_n) to output a resultant reference signal $R_1(t)$ - $R_n(t)$; an adding step for receiving n reference signals $R_1(t)$ - $R_n(t)$ and a single said reference signal $R_0(t)$ as a base and adding them together to output a corrected reference signal $R(t)$; and a correlating step for taking a correlation between a measurement signal $S(t)$ and said corrected reference signal $R(t)$ to output a correlation output signal.---

Page 7, please replace the third paragraph beginning with the phrase “The present invention described in claim 16 . . .” with the following amended paragraph:

~~---The present invention described in claim 16, is~~ A non-limiting feature of the present invention includes a correlation method including a frequency adding step having a predetermined plurality n of multiplying step (EXOR), an adding step, a spreading step, and a correlating step, wherein the plurality n of multiplying step (EXOR) each receive a corresponding frequency component (F_1 - F_n) and a symbol data $D_0(t)$ as a base and multiply both of them to output a multiplied symbol data $D_1(t)$ - $D_n(t)$, the adding step receives said symbol data $D_1(t)$ - $D_n(t)$ from a respective multiplying step (EXOR) and said symbol data $D_0(t)$ as the base and performs an adding process for them to output a resultant addition symbol data $D(t)$, the spreading step receives a spread signal of said addition symbol data $D(t)$ and superposes thereon a spread code $L(t)$ to output a corrected reference signal $R(t)$, and the correlating step receives said corrected reference signal $R(t)$ and a measurement signal $S(t)$ and takes a correlation between them to output a correlation output signal.---

Page 7, please replace the fourth paragraph beginning with the phrase "The present invention described in claim 17 . . ." with the following amended paragraph:

~~---The present invention described in claim 17, is~~ A non-limiting feature of the present invention includes a computer-readable medium embodying a program of instructions for execution by the computer to perform a correlation method including: a frequency adding step for receiving a reference signal $R0(t)$ and adding thereto a predetermined plurality n of frequency components ($F1-Fn$) to output a resultant reference signal $R1(t)-Rn(t)$; an adding step for receiving n reference signals $R1(t)-Rn(t)$ and a single said reference signal $R0(t)$ as a base and adding them together to output a corrected reference signal $R(t)$; and a correlating step for taking a correlation between a measurement signal $S(t)$ and said corrected reference signal $R(t)$ to output a correlation output signal.---

Page 8, please replace the first full paragraph beginning with the phrase "The present invention described in claim 18 . . ." with the following amended paragraph:

~~---The present invention described in claim 18, is~~ A non-limiting feature of the present invention includes a computer-readable medium embodying a program of instructions for execution by the computer to perform a correlation method including a frequency adding step having a predetermined plurality n of multiplying step (EXOR), an adding step, a spreading step, and a correlating step, wherein the plurality n of multiplying step (EXOR) each receive a corresponding frequency component ($F1-Fn$) and a symbol data $D0(t)$ as a base and multiply both of them to output a multiplied symbol data $D1(t)-Dn(t)$, the adding step receives said symbol data $D1(t)-Dn(t)$ from a respective multiplying step (EXOR) and said symbol data $D0(t)$ as the base and performs an adding

process for them to output a resultant addition symbol data $D(t)$, the spreading step receives a spread signal of said addition symbol data $D(t)$ and superposes thereon a spread code $L(t)$ to output a corrected reference signal $R(t)$, and the correlating step receives said corrected reference signal $R(t)$ and a measurement signal $S(t)$ and takes a correlation between them to output a correlation output signal.---

Page 8, please replace the second paragraph beginning with the phrase “The present invention described in claim 19 . . .” with the following amended paragraph:

~~The present invention described in claim 19, is~~ A non-limiting feature of the present invention includes an apparatus for calculation of a correlation value corresponding to a frequency error, including: a 0-th degree correlation device that takes, to output, a correlation between a reference signal and a measurement signal; an n-th degree correlation device that includes a frequency addition calculator for calculating a frequency component addition signal having a frequency component added to the reference signal, and a correlation calculator for taking, to output, a correlation between the frequency component addition signal and the measurement signal; and an addition device that adds an output of the 0-th degree correlation device and an output of the n-th degree correlation device.---

Page 9, please replace the first full paragraph beginning with the phrase “The present invention described in claim 20 . . .” with the following amended paragraph:

~~---The present invention described in claim 20, is~~ A non-limiting feature of the present

invention includes a correlation system including: a frequency adding device that receives a reference signal $R_0(t)$ and adds thereto a predetermined plurality n of frequency components (F_1 - F_n) to output a resultant reference signal $R_1(t)$ - $R_n(t)$; an adder that receives n reference signals $R_1(t)$ - $R_n(t)$ and a single said reference signal $R_0(t)$ as a base and adds them together to output a corrected reference signal $R(t)$; and a correlator that takes a correlation between a measurement signal $S(t)$ and said corrected reference signal $R(t)$ to output a correlation output signal.---

Page 9, please replace the second full paragraph beginning with the phrase "The present invention described in claim 21 . . ." with the following amended paragraph:

~~---The present invention described in claim 21, is~~ A non-limiting feature of the present invention includes a correlation system including a frequency adding device having a predetermined plurality n of multiplying device (EXOR), an adder, a spreader, and a correlator, wherein the plurality n of multiplying device (EXOR) each receive a corresponding frequency component (F_1 - F_n) and a symbol data $D_0(t)$ as a base and multiply both of them to output a multiplied symbol data $D_1(t)$ - $D_n(t)$, the adder receives said symbol data $D_1(t)$ - $D_n(t)$ from a respective multiplying device (EXOR) and said symbol data $D_0(t)$ as the base and performs an adding process for them to output a resultant addition symbol data $D(t)$, the spreader receives a spread signal of said addition symbol data $D(t)$ and superposes thereon a spread code $L(t)$ to output a corrected reference signal $R(t)$, and the correlator receives said corrected reference signal $R(t)$ and a measurement signal $S(t)$ and takes a correlation between them to output a correlation output signal.---